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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/691,278	10/17/2000	Radia J. Perlman	SUN-P5343-RSH	4965

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EXAMINER
CALLAHAN, PAUL E

ART UNIT	PAPER NUMBER
2137	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	09/691,278	PERLMAN ET AL.
	Examiner	Art Unit	
	Paul Callahan	2137	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2007.*

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-29,31-47 and 49-54* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11, 13-29, 31-47, and 49-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-11, 13-29, 31-47, and 49-54 are pending in the instant application and

have been examined.

Response to Arguments

2.   Applicant's arguments filed 1/22/07 have been fully considered but they are not

persuasive.

The applicant argues that the claims, as now presented in amended form, may

be distinguished over the applied prior art because: *There is nothing within Schneier,*

Medvinski and Kohl, either separately, or in concert, which suggests that the owner of

the temporary secret (either a server or a client) initiates a process to establish a new

temporary secret key only at the request of the KDC that maintains the temporary

secret. The Examiner respectfully counters that the amended claim language now

found in claims 1, 19 and 37, does not explicitly state that it is the server that generates

a new temporary secret key. The Examiner's position is that a reasonably broad

interpretation of the added claim language would encompass the KDC generating a new

temporary key via a request message to an internal key generator. The Applicant may

wish to further amend the claims to make it explicit that the server receives a request

from the KDC to generate a new temporary secret key and subsequently generates this

key.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1, 4, 5, 8, 9, 13, 15, 16, 18, 19, 22, 23, 26, 27, 31, 33, 34, 36, 37, 40, 41,

44, 45, 49, 51, 52, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bruce Schneier, Applied Cryptography 2nd Edition, Oct. 1995, John Wiley & Sons

Pub. Pages 43-57, in view of Medvinski et al., "Public Key Utilizing Tickets For

Application Servers" Internet Draft: Common Authentication Technology Working

Group, March 1998, pages 1-6, and Kohl et al., "The Kerberos Network Authentication

Service", Network Working Group Request For Comments (RFC) 1510, Sept. 1993.

As for claims, 1, 19, and 37; The claims each recite a method, a computer

program-product causing a system to carry out a method, and a system configured to

carry out the method, where a communication from a server is received at a key

distribution center, where the communication is authenticated, and where the

communication contains a secret key which is then stored at the key distribution center.

Schneier teaches a method by which a key may be sent from one communicant

to another by means of an authenticated communication in Chapter 3: "Basic Protocols"

pages 47-57, where a session key is distributed from one communicant to another via a

public key protocol. The message is taught as authenticated by virtue of its decryption

by a receiver using a public key of a sender, the sender passing a message and key

encrypted under a private key held only by the sender and uniquely corresponding to

the sender's public key. Schneier teaches the use of such distribution of session keys

by public key techniques involving key distribution centers and servers in pages 43-44:

"Attacks Against Public Key Cryptography."

Schneier does not teach the additional limitation of a temporary secret key being

encrypted with a public key belonging to the KDC, so that the temporary secret key can

only be decrypted using a private key belonging to the KDC. However. Medvinski et al.

teach this feature in a public key extension to the Kerberos protocol (page 2,

PKTGS_REQ: Client to Server). Medvinski teaches the use of a secret key with a

limited lifespan intended to reduce KDC vulnerability (page 57: "Key Expiration").

Therefore it would have been obvious to one of ordinary skill in the art at the time of the

invention to incorporate this feature of Medvinski into the system of Schneier. Motive to

make the combination is found on page 1 of Medvinski Sec. 2: "Introduction" where the

advantage of Public Key extensions to Kerberos is discussed. Schneier teaches a new,

temporary, secret key is that is subsequently generated to replace an invalid temporary

secret key (page 47, Sec. 3.1: "Key Exchange": where a secret or session key is valid

for only one communication session, and a new one is generated for each new

session).

The combination of Schneier and Medvinski does not teach a temporary secret key that becomes invalid after a specified time. However Kohl teaches this feature (page 18, Sec. 3.1.5: "key expiration time", pages 35-36, Sec. 4.2: key expiration is discussed in conjunction with password aging, page 56-57, Sec. 5.4.2: key-expiration). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate these features into the system of Schneier and Medvinski. It would have been desirable to do so as limitations on the lifetime of a key would decrease the likelihood of replay attacks using an old key.

The combination of Schneier and Medvinski does not teach a step where a new temporary secret key is generated in response to a request from the KDC for a new temporary secret key to replace the an invalid temporary secret key. However Kohl does teach this feature (Sec. 2.3: Renewable Tickets, this also reduces overhead for at least one of the communicating entites in Kohl since only one will be required to establish the new key). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated this feature into the system of Schneier and Medvinski. It would have been desirable to do so since requiring a renewed ticket at periodic time intervals reduces the likelihood of compromising the security of the system via replay attacks.

As for claims 4, 22, and 40, Kohl teaches the feature of the claim that Schneier and Medvinski don't not, namely wherein assembling the message involves including an expiration time for the session key in the message (page 18, sec. 3.1.5: Key Expiration

Field). Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to incorporate this feature of into the system of Schneier and Medvinski.

It would have been desirable to do so as the use of an expiration date for the key would

prevent a replay attack by an eavesdropper.

As for claims 5, 23, and 41, Schneier teaches a step where allowing the client to

forward the ticket to the server includes allowing the client to forward an identifier for the

temporary secret key to the server so that the server can know which temporary secret

key to use in decrypting the ticket (page 568, Credentials, where the client i.d. is

authenticated and serves as a session key identifier).

As for claims 8, 26, and 44, Schneier teaches the step of receiving the

communication from the server involves authenticating the server (page 570,

"Requesting a Service").

As for claims 9, 27, and 45, Schneier teaches a step of authenticating the server

that involves using authentication information pertaining to the server, the authentication

information including a certificate chain from a trust anchor to the server, and including

a server public key that is associated with a server private key to form a public key-

private key pair associated with the server (page 575-577: "Certificates").

As for claims 13, 31, and 49, Schneier teaches a step wherein the communication is signed with a server private key so that the KDC can use a corresponding server public key to verify that the communication was sent by the server (page 53-54: "Authentication Using Public Key Cryptography).

As for claims 15, 33, and 51, Schneier teaches communicating information to the server that enables the server to authenticate the KDC (pages 53-54, Authentication Using Public Key Cryptography).

As for claims 16, 34, and 52, Schneier teaches a KDC operating in accordance with the Kerberos standard (page 60, Kerberos).

As for claims 18, 36, and 54, Medvinski teaches the features of the claim not taught by Schneier, namely propagating the temporary secret key to multiple KDCs (page 5, sec. 5.1.3. "Cross realm Authentication"). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate this feature into the system of Schneier. It would have been desirable to do so as this would allow for distributed authentication across many domains.

5.   Claims 14, 17, 32, 35, 50, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruce Schneier, Applied Cryptography 2nd Edition, Oct. 1995, John Wiley & Sons Pub. Pages 43-57, in view of Medvinski et al., "Public Key Utilizing Tickets

For Application Servers" Internet Draft: Common Authentication Technology Working

Group, March 1998, pages 1-6.

As for claims 14, 32, and 50, Official Notice may be taken that the step of an

initial key request message sent by a KDC to the server indicating that the temporary

secret key is needed from the server is old and well known in the art of secure

communications. A good example of this process is one found in the registration of new

nodes in multicast systems. Therefore it would have been obvious to one of ordinary

skill in the art at the time of the invention to incorporate this feature into the system of

Schneier and Medvinski. It would have been desirable to do so as this would allow for

rapid client-server service request response processing.

As for claim 17, 35, and 53, Official Notice may be taken that the step of an

authentication communication received from a server that additionally includes an

identifier for the server is one that is old and well known in the art of secure

communications. Therefore it would have been obvious to one of ordinary skill in the art

at the time of the invention to incorporate this feature into the system of Schneier and

Medvinski. It would have been desirable to do so as such an identifier would allow for

mutual authentication of the server and KDC.

6.   Claims, 2, 3, 6, 7, 10, 11, 20, 21, 24, 25, 28, 29, 38, 39, 42, 43, 46, and 47 are

rejected under 35 U.S.C. 103(a) as being unpatentable over Bruce Schneier, Applied

Cryptography 2nd Edition, Oct. 1995, John Wiley & Sons Pub. Pages 43-57, in view of

Medvinski et al., "Public Key Utilizing Tickets For Application Servers" Internet Draft:

Common Authentication Technology Working Group, March 1998, pages 1-6, Sirbu et

al., "Public Key Based Ticket Granting Service in Kerberos" Internet-Draft, May 6, 1996,

pages 1-16, and Official Notice taken as detailed below.

As for claims 2, 20, and 38, Sirbu teaches the limitations of these claims that the

combination of Schneier and Medvinski et al. fails to teach, namely where upon

receiving a request from a client at the KDC to communicate with a server, further

facilitating communications between the client and the server by: producing a session

key to be used in communications between the client and server; (page 2, Sec. 3.1 PK

Kerberos Operation) creating a ticket to the server by encrypting an identifier for the

client and the session key with the temporary secret key for the server (page 3, Sec.

3.1: PK Kerberos Operation); and assembling a message that includes the identifier for

the server, the session key and the ticket to the server; and sending the message to the

client in a secure manner (page 3, Sec. 4: Message Exchanges); and allowing the client

to forward the ticket to the server in order to initiate communications between the client

and the server (page 3, Sec. 4: Message Exchanges). Therefore it would have been

obvious to one of ordinary skill in the art at the time of the invention to incorporate this

feature of Sirbu et al. into the system of Schneier and Medvinski. Motive to make this

combination is found for example in page 2 sec. 2 of Sirbu et al., where the absence of

long term storage of secret keys is discussed.

As for claims 3, 21, and 39, Sirbu teaches the features of the claim not taught by the combination of Schneier and Medvinski, namely, upon receiving the ticket from the client at the server, the method further comprises: decrypting the ticket at the server using the temporary secret key to restore the session key and the identifier for the client (pages 2-3, Sec. 3.1 PK Kerberos Operation, page. 5, Sec. 4.2.2: Receipt of PKTGS-ReQ); and using the session key at the server to protect subsequent communications between the server and the client. (Pages 2-3, Sec. 3.1 : PK Kerberos Operation, page. 5, Sec. 4.2.2: Receipt of PKTGS-ReQ). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate this feature of Sirbu et al. into the system of Schneier and Medvinski. Motive to make this combination is found for example in page 2 sec. 2, where the absence of long-term storage of secret keys is discussed.

As for claims 6, 24, and 42, Sirbu teaches the features of the claims that the combination of Schneier and Medvinski do not teach, namely wherein sending the message to the client in the secure manner involves encrypting the message with a second session key that was previously communicated to the client by the KDC (page 2 sec. 3.1 PK Kerberos Operation). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate this feature into the system of Schneier and Medvinski. It would have been desirable to do so as this would allow for reduced computational overhead in the message exchange.

As for claims 7, 25, and 43, Sirbu teaches the features of the claim not taught by the combination of Schneier and Medvinski, namely alternatively creating the ticket to the server by encrypting the identifier for the client and the session key with one of: a public key for the server; and a secret key for the server previously agreed upon between the server and the KDC and stored at the KDC (page 7 Sec. 5.3 PKTGS-REQ). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate this feature into the system of Schneier and Medvinski. It would have been desirable to do so as this would allow only an entity knowing the secret key associated with the public key of the server to decrypt.

As for claims 10, 28, and 46, Sirbu teaches a step wherein authenticating the server involves authenticating the server without having prior configuration information pertaining to the server at the KDC (page 2 sec. 1 Motivation). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate this feature into the system of Schneier and Medvinski. It would have been desirable to do so as this would allow for authentication directly between a client and server without the computational overhead associated with a trusted third party.

As for claims 11, 29, and 47, Sirbu teaches the features of the claim not taught by the combination of Schneier and Medvinski, namely authenticating the server includes using a server public key that is stored locally in the KDC (page 2 sec. 3.1 PK

Kerberos Operation). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate this feature into the system of Schneier and Medvinski. Motive to make the combination is found on page 1 of Medvinski Sec. 2: "Introduction" where the advantage of Public Key extensions to Kerberos is discussed.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E. Callahan whose telephone number is (571) 272-3869. The examiner can normally be reached on M-F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's

supervisor, Emmanuel Moise, can be reached on (571) 272-3865. The fax phone

number for the organization where this application or proceeding is assigned is: (571)

273-8300.

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PEC

3-27-07

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